

## **REMARKS**

By this amendment, Applicants have canceled claim 25 without prejudice or disclaimer and have amended claims 28 and 30 to more clearly define their invention. In particular, claim 28 has been amended to clarify the shape of the outer sheet (see the figures), to recite that the urine absorbent material has at least two layers such that the water-absorbent capability of a bottom layer located adjacent the bottom portion of the outer sheet is larger than that of the top layer and that the bottom layer is formed by a foam or porous material (see, the paragraph bridging pages 12 and 13 of the specification as originally filed), to recite the breathability of the top sheet (see the paragraph bridging pages 6 and 7 of the specification as originally filed), and to clarify the operation of the automatic urine disposable device. Claim 30 has been amended to correct a typographical error. Claims 29 and 30 have been amended to depend from claim 28.

In view of the cancellation of claim 25 and the change in dependency of claims 29 and 30, the rejection of claims 25, 29 and 30 under 35 U.S.C. 101 and the rejection of claim 25 under 35 U.S.C. 103(a) in numbered section 9 of the Office Action are moot.

In view of the foregoing amendments to claim 30, it is submitted that claim 30 complies with the requirements of 35 U.S.C. 112, second paragraph. Therefore, reconsideration and withdrawal of the rejection of claim 30 under 35 U.S.C. 112, second paragraph, are requested.

Claims 25 and 28 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,911,222 to Lawrence et al. in view of U.S. Patent No. 5,002,541 to Conkling et al. Applicants traverse this rejection and request reconsideration thereof.

The automatic urine disposal device of the present invention can provide improved operation and effects as compared to the proposed combination of Lawrence et al. and Conkling et al. because of the presently claimed structure.

Firstly, the percentage of urine collection by the urine receptacle can be increased and the amount of urine which remains in the urine receptacle reduced. This effect is provided by means of the structure and operation in which the top sheet is arranged to cover the top layer of the urine absorbent material so as to keep the urine absorbent material highly airtight with the outer sheets and by the urine absorbent material being formed to have at least two layers such that the water-absorbent capability of a bottom layer located adjacent the bottom portion of the outer sheet is larger than the top layer, the bottom layer being formed by a foam or porous material. The vacuum pump may be initiated responsively upon the wearer's urination, and the urine absorbent material may be deflated and the urine may be extracted, and thus the urine is discharged from the urine absorbent material to the urine tank. Moreover, the percentage of urine collection by the urine receptacle's urine absorbent material can be increased and the amount of urine which remains in the urine receptacle can be reduced. It will also be appreciated that a wet feeling at a wearer's urinating part and surrounding skin can be reduced, and the wearer can also feel less discomfort.

Specifically, as the present invention has a structure such that the water-absorbent capability of the bottom layer of the urine absorbent material is made larger than the top layer, and this bottom layer is made of a foam or porous material, it is possible to prevent the flowback of the urine due to the wearer's posture and also to prevent any reduction in the percentage of urine collection due to excessive reduction in volume of the urine receptacle when extracting the urine. Further, it is possible to prevent the wearer from feeling discomfort such as rashes and skin

troubles caused by the long term stuffy state of skin or genital organ due to wetness after urination, and to prevent a physically fastened feeling caused by reduction in volume of the urine receptacle, as the urine receptacle may become semidry when extracting the urine. The present invention also allows to reduce the burdens on the caretaker by way of facilitating the exchange and disposal of the urine receptacle itself.

In order to reduce the wet feeling of the amount of urine which remains in the urine receptacle, to make it easier to dispose of the used urine receptacle and replace it with a new urine receptacle without the wearer feeling discomfort and to fit the urine receptacle in the wearer's underwear, the present invention combines the following features.

The outer sheet is formed of a liquid-impermeable and non-breathable thin sheet made of soft flexible material, the inner surface of the outer sheet may be water-repellant finished. The outer sheet has a U-shaped cross-section, and have a width at the middle portion in the longitudinal direction being narrow, so that it is shaped like an hourglass, and has gathers provided along its periphery.

The top sheet is provided so as to cover the top surface of the urine absorbent material and has the claimed breathability.

The one-touch joint is made of a soft material and the urine sensor is provided so as to conduct electrically upon sensing the urination at the urine drainage port and its surrounding area.

The Lawrence et al. patent discloses a liquid removal system having an interface device and a vacuum source. The interface device has a porous membrane with an entrance zone on one side. The vacuum source maintains a vacuum on the side of the membrane opposite the entrance zone when the membrane is wetted.

Liquid which contacts the wetted porous membrane is removed from the interface device by the vacuum source.

The Lawrence et al. patent does not disclose the automatic urine disposal device for the present invention, including the presently claimed urine sensor.

The Conkling et al. patent discloses a device for detecting the presence of urine at the genital region of an individual and removing and storing the urine. The device includes an external urine collecting vessel which is supported at the genital region to contain the urine within the vessel. Liquid sensors are contained within the vessel for detecting the presence of urine and automatically activating a pump to draw the urine through a tubing to a temporary storage chamber. A liquid impermeable liner is placed within the collecting vessel for improved hygiene and for directing the urine away from the individual.

The external urine collecting vessel of Conkling et al. is quite different than the urine receptacle of the present invention and the interface device of Lawrence et al. The external urine collecting vessel of Conkling et al. is not made of the outer sheet, top sheet and urine absorbent material as presently claimed. Rather, the vessel in Conkling et al. is in a form of an open-ended cup without the presently claimed sheets or absorbent material. Since there is no absorbent material and the cup is open-ended, the urine contained in the vessel must clearly be detected and drawn out. The interface device of Lawrence et al. is of a completely different construction. It is submitted there would have been no reason for one of ordinary skill in the art to have used the liquid sensor of Conkling et al. in the interface device of Lawrence et al. This is evidenced by the fact that while liquid sensors are known, the inventors of Lawrence et al. do not use them.

For the foregoing reasons, it is submitted it would not have been obvious to modify the system of Lawrence et al. using the liquid sensors of Conkling et al.

Accordingly, it is submitted the presently claimed invention is patentable over the proposed combination of documents.

In view of the foregoing amendments and remarks, favorable reconsideration and allowance of all the claims now in the application are requested.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 503.43626X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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